

CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (previously presented). A method of determining, in a fluid sample, a presence of particles having a substantially predetermined size or a substantially predetermined range of sizes, the method which comprises:

providing the sample in a chamber;

illuminating the sample in the chamber with a first wavelength of substantially horizontally and/or vertically polarized light,

obtaining a first response signal indicative of the first illumination,

illuminating the sample in the chamber with a second wavelength of light,

obtaining a second response signal indicative of the second illumination, and

determining the presence of the particles having the size or range of sizes by subtracting the first signal from the second signal.

Claims 2-3 (canceled).

Claim 4 (previously presented). The method according to claim 1, wherein the second wavelength provides a response signal for particles having the substantially predetermined size or the substantially predetermined range of sizes and for particles not having the substantially predetermined size or the substantially predetermined range of sizes, and the first wavelength provides a response signal for particles not having the substantially predetermined size or outside of the substantially predetermined range of sizes.

Claim 5 (previously presented). The method according to claim 1, which further comprises: upon detecting particles of the predetermined size or the range of sizes, triggering an alarm signal.

Claim 6 (previously presented). The method according to claim 5, wherein the alarm signal is indicative of an alarm condition for a pyrolysis, smouldering and/or smoke event.

Claim 7 (previously presented). The method according to claim 1, which further comprises: providing the first wavelength as infrared light and the second wavelength as blue light.

Claim 8 (previously presented). The method according to claim 1, which further comprises: providing the first wavelength of light in the range of 650nm to 1050nm, and second wavelength of light is in the range of 400nm to 500nm.

Claim 9 (previously presented). The method according to claim 1, which further comprises:

illuminating the sample with at least one further wavelength of light, in which particles of at least one further size or range of sizes are relatively responsive to the further wavelength of light,

obtaining at least one further response signal indicative of the further illumination, and

determining the presence of the particles of the further size or range of sizes by comparing the first signal, the second signal, and the further signal.

Claim 10 (previously presented). The method according to claim 1, which further comprises: polarizing the second illumination.

Claim 11 (previously presented). The method according to claim 1, which further comprises: horizontally and/or vertically polarizing the second illumination.

Claim 12 (currently amended). The method according to claim 1, which further comprises: providing the first illumination as a relatively longer wavelength that is horizontally ~~polarised~~ polarized and the second illumination as a relatively short wavelength that is vertically ~~polarised~~ polarized.

Claim 13 (currently amended). The method according to claim 1, which further comprises: providing the first illumination as a red or infrared light that is horizontally ~~polarised~~ polarized and providing the second illumination as a blue wavelength light that is vertically ~~polarised~~ polarized.

Claim 14 (currently amended). The method according to claim 1, which further comprises: providing the first illumination as a red or infrared light that is horizontally ~~polarised~~ polarized and providing the second illumination as a blue light that is ~~un-polarised~~ un-polarized.

Claim 15 (previously presented). A particle monitor adapted to determine, in a fluid sample in a chamber, the presence of particle(s) having a predetermined range of size(s), the monitor comprising:

first illumination means for illuminating the sample in the chamber with a first wavelength of substantially horizontally and/or vertically polarized light, the first light being of a wavelength to which particles of a first size(s) are relatively responsive,

a first signal means for providing a first signal indicative of the first illumination,
second illumination means for illuminating the sample in the chamber with a
second wavelength of light, the second light being of a wavelength to which
particles of a second size(s) are relatively responsive,

a second signal means for providing a second signal indicative of the second
illumination, and

logic means for determining the presence of the particles in the predetermined
range by subtracting the first signal from the second signal.

Claim 16 (previously presented). Apparatus adapted to detect, in a fluid sample
in a chamber, particle(s) having a predetermined range of size(s), said
apparatus comprising:

processor means adapted to operate in accordance with a predetermined
instruction set, said apparatus, in conjunction with said instruction set, being
adapted to perform the method comprising the steps of:

illuminating the sample in the chamber with a first wavelength of substantially
horizontally and/or vertically polarized light,

obtaining a first response signal indicative of the first illumination,

illuminating the sample in the chamber with a second wavelength of light,

obtaining a second response signal indicative of the second illumination, and

determining the presence of the particles having the size or range of size(s) by
subtracting the first signal from the second signal.

Claims 17-66 (canceled).

Claim 67 (new). The apparatus according to claim 16, wherein the method further comprises: providing the first wavelength of light as a relatively longer wavelength that is horizontally polarized and the second wavelength of light as a relatively short wavelength that is vertically polarized.

Claim 68 (new). The particle monitor according to claim 15, wherein:

the first illumination means provides the first wavelength of light as a relatively longer wavelength that is horizontally polarized; and

the second illumination means provides the second wavelength of light as a relatively short wavelength that is vertically polarized.